

Nebraska Biotechnology Varieties Chemical Usage

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Biotechnology Varieties

The National Agricultural Statistics Service conducts the March Agricultural Survey in all States each year. Randomly selected farmers across the United States are asked what they intend to plant during the upcoming growing season. Questions include whether or not farmers intend to plant corn or soybeans that, through biotechnology, is resistant to herbicides, insects, or both.

The States published individually in the following tables represent 81 percent of all corn planted acres and 90 percent of all soybean planted acres. Conventionally bred herbicide resistant varieties were excluded. Insect resistant varieties include only those containing *bacillus thuringiensis* (Bt). Stacked gene varieties include those containing biotech traits for both herbicide and insect resistance.

Corn for Grain: Biotechnology Varieties by State and United States, Percent of All Corn Planted, 2001-2002

State	Insect Resistant (Bt)		Herbicide Resistant		Stacked Gene Varieties		All Biotech Varieties	
	2001	2002	2001	2002	2001	2002	2001	2002
<i>Percent</i>								
Illinois	12	20	3	3	1	1	16	24
Indiana	6	8	6	7	*	1	12	16
Iowa	25	30	6	9	1	4	32	43
Kansas	26	24	11	11	1	3	38	38
Michigan	8	11	7	6	2	2	17	19
Minnesota	25	31	7	7	4	3	36	41
Missouri	23	24	8	6	1	1	32	31
Nebraska	24	32	8	9	2	2	34	43
Ohio	7	6	4	3	*	*	11	9
South Dakota	30	35	14	22	3	8	47	65
Wisconsin	11	15	6	8	1	2	18	25
Other States ¹	11	14	8	12	1	2	20	27
US	18	22	7	8	1	2	26	32

* Data rounds to less than 0.5 percent. ¹ Other States includes all other States in the Corn estimating program.

Source: USDA NASS Prospective Plantings, March 28, 2002

Soybeans: Biotechnology Varieties by State and United States, Percent of All Soybeans Planted, 2001-2002

State	Herbicide Resistant Only		All Biotech Varieties	
	2001	2002	2001	2002
<i>Percent</i>				
Arkansas	60	63	60	63
Illinois	64	71	64	71
Indiana	78	83	78	83
Iowa	73	78	73	78
Kansas	80	80	80	80
Michigan	59	71	59	71
Minnesota	63	69	63	69
Mississippi	63	67	63	67
Missouri	69	73	69	73
Nebraska	76	86	76	86
North Dakota	49	50	49	50
Ohio	64	73	64	73
South Dakota	80	86	80	86
Wisconsin	63	71	63	71
Other States ¹	64	68	64	68
US	68	74	68	74

¹ Other States includes all other States in the Soybean estimating program.

Source: USDA NASS Prospective Plantings, March 28, 2002.

2001 Agricultural Chemical Usage

The agricultural chemical use estimates in this report refer to on-farm use of commercial fertilizers and pesticides on targeted crops for the 2001 crop year. Farm and ranch operators were enumerated late in the growing season or after the farm operator

had indicated that planned applications were completed. The data were compiled from the Agricultural Resources Management Study (ARMS) and the Objective Yield Survey, conducted by USDA's National Agricultural Statistics Service.

Corn

Nitrogen was applied to 96 percent of the 2001 corn acreage in 19 selected States. Corn growers used an average of 1.8 applications per acre while applying 73 pounds of nitrogen per treatment. In the selected States, 79 percent of the planted corn acreage received phosphates, while potash was applied to 65 percent of the acreage.

Herbicides were applied to 98 percent of the corn acreage in 2001. Atrazine continued to be the most commonly used herbicide with 75 percent of the reported acreage being treated. It was applied at the rate of 1.07 pounds per acre.

In 2001, 29 percent of the corn acreage was treated with insecticides. Chlorpyrifos was the most commonly used insecticide, representing 3.7 million out of the total 9.0 million pounds of insecticide applied in the 19 selected States. It was applied at the rate of 1.04 pounds per acre.

In Nebraska, nitrogen was applied to 100 percent of the acreage, phosphates to 77 percent and potash to 25 percent. Herbicides were applied to 99 percent of the corn acreage while insecticide application covered 48 percent. There were a total of 183 usable reports.

Corn: Acreage, Fertilizer and Pesticide Applications, Selected States, 2001

State	Planted Acreage	Nitrogen			Phosphate			Potash			Herbicide	Insecticide
		Area Applied	Appli-cations	Rate Per Application	Area Applied	Appli-cations	Rate Per Application	Area Applied	Appli-cations	Rate Per Application	Area Applied	Area Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>	<i>Percent</i>
Iowa	11,700	87	1.5	83	62	1.0	53	60	1.0	66	99	7
Kansas	3,450	97	1.4	89	71	1.0	36	19	1.0	39	95	24
Missouri	2,700	99	1.4	103	82	1.0	57	83	1.0	70	97	37
Nebraska	8,100	100	2.1	62	77	1.1	31	25	1.2	17	99	48
South Dakota	3,800	95	1.5	72	69	1.0	43	32	1.0	29	96	8
Total ¹	70,745	96	1.8	73	79	1.1	50	65	1.1	75	98	29

¹ States included: CO, GA, IL, IN, IA, KS, KY, MI, MN, MO, NE, NY, NC, ND, OH, PA, SD, TX, WI.

Corn: Agricultural Chemical Applications, Nebraska, 2000-2001 ¹

Agricultural Chemical	Area Applied		Applications		Rate per Application		Rate per Crop Year		Total Applied	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Herbicides:	<i>Percent</i>		<i>Number</i>		<i>Pounds/acre</i>		<i>Pounds/acre</i>		<i>1,000 Pounds</i>	
2,4-D	4	6	1.0	1.0	0.42	0.34	0.43	0.34	165	177
Acetamide	5	3	1.0	1.0	0.64	0.30	0.66	0.30	259	68
Acetochlor	17	29	1.0	1.0	1.59	1.18	1.59	1.18	2,346	2,815
Alachlor	5	5	1.0	1.0	1.71	2.20	1.71	2.20	668	832
Atrazine	80	86	1.0	1.0	1.06	0.89	1.11	0.92	7,497	6,424
Bromoxynil		1		1.0		0.39		0.39		36
Clopyralid	8	2	1.0	1.0	0.12	0.08	0.12	0.08	78	14
Dicamba	16	9	1.0	1.0	0.17	0.12	0.17	0.12	239	83
Dicamba, Dimet. salt	3	2	1.0	1.0	0.41	0.11	0.41	0.11	96	19
Diflufenzopyr-sodium	3	3	1.0	1.0	0.16	0.04	0.16	0.04	38	9
Dimethenamid	5	9	1.0	1.0	1.03	0.81	1.03	0.81	443	605
Flumetsulam	8	2	1.0	1.0	0.04	0.04	0.04	0.04	29	8
Glyphosate	3	15	1.1	1.1	0.62	0.76	0.72	0.85	182	1,056
Imazethapyr	6	4	1.0	1.0	0.02	0.02	0.02	0.02	12	6
Isoxaflutole	3	13	1.0	1.0	0.06	0.04	0.06	0.04	14	45
Metolachlor	45	5	1.0	1.0	1.12	1.31	1.12	1.31	4,259	554
Nicosulfuron	12	8	1.0	1.0	0.03	0.02	0.03	0.02	28	13
Primisulfuron	10	4	1.0	1.0	0.02	0.02	0.02	0.02	17	7
Prosulfuron	7	3	1.0	1.0	0.008	0.01	0.008	0.01	5	3
Rimsulfuron	8	6	1.0	1.0	0.01	0.01	0.01	0.01	9	5
S-Metolachlor		24		1.0		0.89		0.89		1,756
Insecticides:										
Chlorpyrifos	4	3	1.0	1.0	0.78	0.88	0.78	0.88	246	214
Cyfluthrin	5	10	1.0	1.0	0.007	0.007	0.007	0.007	3	5
Fipronil	21	15	1.0	1.0	0.10	0.11	0.10	0.11	178	136
Permethrin	4	2	1.0	1.0	0.06	0.07	0.06	0.07	17	14
Tebupirimphos	5	10	1.0	1.0	0.14	0.14	0.14	0.14	57	108
Tefluthrin	12	8	1.0	1.0	0.09	0.10	0.09	0.10	95	68
Terbufos	7	6	1.0	1.0	1.13	0.99	1.13	0.99	675	442

¹ Missing data not published.

Soybeans

Soybean producers in 8 selected States applied nitrogen fertilizer to 11 percent of the area planted to soybeans. The average number of nitrogen applications per acre was 1.0 with an average application rate of 22 pounds per acre. Phosphate was applied on 17 percent of the soybean planted acreage while potash was applied to 20 percent.

In the 8 selected States, 96 percent of the soybean acreage was treated with herbicides. The most widely used herbicide was

Glyphosate, applied to 73 percent of the soybean acres. Soybean growers in the States surveyed applied insecticides to only 1 percent of the soybean acres planted. Soybean growers also reported few fungicide applications.

In Nebraska, nitrogen was applied to 22 percent of the soybean acreage, phosphates to 21 percent, and potash to 10 percent. Herbicides were applied to 96 percent of the soybean acreage. There were a total of 99 usable reports.

Soybeans: Acreage, Fertilizer and Pesticide Applications, Selected States, 2001

State	Planted Acreage	Nitrogen			Phosphate			Potash			Herbicide
		Area Applied	Appli-cations	Rate Per Application	Area Applied	Appli-cations	Rate Per Application	Area Applied	Appli-cations	Rate Per Application	Area Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds/acre</i>	<i>Percent</i>
Iowa	11,000	5	1.1	16	9	1.0	45	10	1.0	66	95
Missouri	4,950	6	1.0	20	24	1.0	45	22	1.0	57	95
Nebraska	4,950	22	1.1	19	21	1.0	36	10	1.0	26	96
Total ¹	52,000	11	1.0	22	17	1.0	48	20	1.0	83	96

¹ States included: AR, IL, IN, IA, MN, MO, NE, OH.

Soybeans: Agricultural Chemical Applications, Nebraska, 2000-2001 ¹

Agricultural Chemical	Area Applied		Applications		Rate per Application		Rate per Year		Total Applied	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Herbicides:	<i>Percent</i>		<i>Number</i>		<i>Pounds/acre</i>		<i>1,000 pounds</i>			
Cloransulam-methyl	3	9	1.0	1.0	0.03	0.02	0.03	0.02	3	10
Fomeafen		6		1.0		0.20		0.20		62
Glyphosate	72	72	1.2	1.2	0.75	0.72	0.91	0.87	3,049	3,101
Imazethapyr	22	13	1.0	1.0	0.06	0.05	0.06	0.06	56	37
Pendimethalin	22	13	1.0	1.0	1.04	0.80	1.04	0.80	1,061	502
Sulfentrazone		6		1.0		0.16		0.16		47
Sulfosate	3	6	1.0	1.6	0.98	1.26	0.98	2.10	158	624
Trifluralin	14	8	1.0	1.0	0.77	0.85	0.77	0.85	492	335

¹ Missing data not published.

Corn and Soybeans: Pest Management Practices, Percent of Acres Receiving Practice, Nebraska, 2001

Practice	Corn		Soybeans	
	Nebraska	Total ¹	Nebraska	Total ²
Prevention Practices:	<i>Percent of Acres</i>		<i>Percent of Acres</i>	
Tillage/etc. to manage pests	39	31	48	51
Remove or plow down crop residue	10	17	11	24
Clean implements after fieldwork	22	21	31	34
Water managemnet practices	3	3	11	10
Avoidance Practices:				
Biotech varieties with insect resistance only	24	(³)	7	10
Adjust planting/harvesting dates	1	3	87	79
Rotate crops to control pests	59	71	2	3
Alternate planting locations	6	7	7	12
Grow trap crop to control insects	2	2	*	1
Monitoring Practices:				
Scouted for pests	60	55	33	39
Records kept to track pests	22	18	16	16
Field mapping of weed problems	22	18	12	17
Soil analysis to detect pests	2	4	3	13
Pheromones to monitor pests	*	1	*	1
Weather monitoring	6	7	11	17
Suppression Practices:				
Biotech varieties with herbicide resistance only	8	(³)	76	(³)
Scouting used to make decisions	20	14	15	14
Biological pesticides	12	8	1	1
Beneficial organisms	*	*	*	*
Maintain ground cover or physical barriers	35	12	25	13
Adjust planting methods	6	4	17	17
Alternate pesticides	48	41	37	36
Pheromones to disrupt mating	*	1	*	*

¹ States included: CO, GA, IL, IN, IA, KS, KY, MI, MN, MO, NE, NY, NC, ND, OH, PA, SD, TX, WI. ² States included: AR, IL, IN, IA, MN, MO, NE, OH. ³ State data not available. * Less than 1 percent.

Pesticides: Common Names and Trade Names

Herbicides

Common Name	Trade Name
2,4-D	Several
Acetamide	Axiom, Epic, Define, Domain
Acetochlor	Harness, Harness Plus, Surpass, Double Play, Field Master, Topnotch, Degree Xtra
Alachlor	Lasso, Freedom, Bronco, Bullet, Partner, Micro-Tech, Lariat
Atrazine	Atrazine, Bicep, Degre Xtra, Conquest, Simazat, Laddok, Extrazine, Bullet, Bicep, AAtrek, LeadOff, Basis Gold, Lariat, Surpass, Guardsman, Marksman
Bromoxynil	Buctril
Clopyralid	Curtail, Stinger, Hornet, Accent Gold
Cloransulam-methyl	FirstRate, Frontrow, Gauntlet
Dicamba	Banvel, NorthStar, Celebrity, OpTill, Resolve, Fallow Master, Clarity
Dicamba, Dimethylamine salt	Distinct, Sterling
Diflufenzopyr-sodium	Celebrity Plus, Distinct
Dimethenamid	Guardsman, Frontier, OpTill, Leadoff
Flumetsulam	Broadstrike, Accent Gold, Bicep Magnum, Python, Frontrow, Hornet
Fomesafen	Reflex, Flexstar, Typhoon
Glyphosate	Roundup, Glyphomax, Glyphos, Mirage, Protocol, Extreme, Jury, Bronco, Fallow Master, Landmaster, Field Master
Imazethapyr	Pursuit, Lightning, Steel, Extreme, Resolve
Isoxaflutole	Balance, Epic
Metolachlor	Dual, Dual II, Bicep, Turbo
Nicosulfuron	Accent Gold, Celebrity, Steadfast, Accent, Basis Gold
Pendimethalin	Prowl, Steel, Pursuit Plus, Squadron
Primisulfuron	Exceed, NorthStar, Beacon, Spirit
Prosulfuron	Exceed, Spirit
Rimsulfuron	Steadfast, Accent Gold, Basis, Matric, Basis Gold
S-Metolachlor	Dual Magnum, Dual II Magnum, Bicep Magnum, Boundary, Bicep Lite II Magnum,
Sulfentrazone	Authority, Gauntlet, Canopy
Sulfosate	Touchdown
Trifluralin	Trilin, Trust, Treflan, Trifluralin, Tri-Scept, Commence, Freedom, Tri-4

Insecticides

Common Name	Trade Name
Chlorpyrifos	Lorsban
Cyfluthrin	Baythroid, Leverage, Aztec
Fipronil	Regent
Permethrin	Pounce, Ambush
Tebupirimphos	Aztec
Terbufos	Counter

Agricultural chemical use and pest management practices data contained in this publication are a summary of data published in USDA NASS *Agricultural Chemical Usage - Field Crops* found on the internet at <http://www.usda.gov/nass/> dated May 15, 2002.